DOCUMENT RESUME

ED 189 576 CS 005 557

AUTHOR Byers, Joe L.; Evans, Thomas E.
TITLE Using a Lens-Model Analysis to Identify the Factors in Teacher Judgment. Research Series No. 73.
INSTITUTION Michigan State Univ., East Lansing. Inst. for Research on Teaching.
SPONS AGENCY National Inst. of Education (DHEW), Washington, D.C.
PUB DATE Apr 80
CONTRACT 400-76-0073
NOTE 34p.
AVAILABLE FROM Institute for Research on Teaching, College of Education, Michigan State University, 252 Erickson Hall, East Lansing, MI 48824 ($2.50)

EDRS PRICE MF01/PC02 Plus Postage.
DESCRIPTORS Elementary Education: *Prediction: *Reading Achievement: Reading Improvement: Reading Instruction: *Reading Interests: *Reading Material Selection: *Reading Research: Student Teacher Relationship: Teacher Attitudes: *Teacher Characteristics
IDENTIFIERS *Lens Model Analysis

ABSTRACT

A total of 29 teachers and 227 students served as subjects in a two-phase study to identify the factors that influence teacher judgments of students' reading interests across grades kindergarten through grade six. The first phase of the study identified 29 cues affecting both student reading preferences and teacher judgments of those preferences. In the second phase, student reading preferences were identified by having students select which books they would like to read from a list of book descriptions. Teachers then were asked to predict the preferences of each student. Each book description was coded for the presence or absence of the 29 cues identified in the earlier phase, and a lens-model analysis of the factors contributing to the teachers' judgmental accuracy was conducted. The results (1) illustrated that a lens-model analysis may be profitably used to identify the factors that contribute to teacher judgmental accuracy for specific problems: (2) suggested that although student reading interests were predictable, they were also changeable and that teachers did not typically have sufficient knowledge of individual student interests to accurately predict which books a student would prefer: and (3) suggested that teachers were highly individualized in their judgment patterns for the task, indicating a lack of a professional format for approaching the task. (Author/FL)

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ED189576

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Research Series No. 73

USING A LENS-MODEL ANALYSIS TO IDENTIFY THE FACTORS IN TEACHER JUDGMENT

Joe L. Byers and Thomas E. Evans

Published By

The Institute for Research on Teaching
252 Erickson Hall
Michigan State University
East Lansing, Michigan 48824

April 1980

This work is sponsored in part by the Institute for Research on Teaching, College of Education, Michigan State University. The Institute for Research on Teaching is funded primarily by the Program for Teaching and Instruction of the National Institute of Education, United States Department of Health, Education, and Welfare. The opinions expressed in this publication do not necessarily reflect the position, policy, or endorsement of the National Institute of Education. (Contract No. 400-76-0073)

CS805557

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USING A LENS-MODEL ANALYSIS TO IDENTIFY THE FACTORS IN TEACHER JUDGMENT

Joe L. Byers and Thomas E. Evans[1]

Research indicates that interest-based reading programs may significantly increase reading achievement, especially for boys (Asher, Note 1). Such programs may also induce more positive attitudes toward reading (Zimet, Rose, Blom, & Parsons, Note 2). It appears, however, that reading interests are highly individualized and shift rapidly; significant changes occur as often as every three to four months (Asher, Note 1). If reading assignments are to reflect these individualized and changing interests, teachers must be sensitive to them. Thus it is important to understand how teachers typically make judgments about the reading interests of their students, and to identify areas in which improvement in those judgments might be expected.

The present paper approaches this problem from the theoretical perspective of Brunswick's (1955) lens model. The student's reading preference served as the criterion in this study, and the teacher's independent predictions of those preferences were the judgments. In an earlier study (Evans & Byers, Note 3), 29 cues were identified that were shown to be predictive of students' reading preferences; these cues served as the predictor variables in the lens model. Since

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[1]Joe L. Byers is a senior researcher with IRT, a professor of educational psychology, and director of the Office of Research Consultation, College of Education, Michigan State University. Thomas E. Evans is an IRT research intern and an associate professor of psychology at Olivet College in Michigan.

the lens-model analysis provides estimates of the factors contributing to judgmental accuracy, it is particularly useful when the research goal is to identify potential areas for improving judgmental accuracy.

The present study was conducted to determine (1) The overall judgmental accuracy of teachers on this task (i.e., how aware are teachers of their students' reading interests?), (2) Are teachers' judgmental policies similar or highly individualized? (3) Is sex stereotyping a major source of judgmental error? (4) Do children make selections consistently (i.e., are their policies predictable?)? (5) Do teachers make predictions consistently? (6) Do teachers have sufficient knowledge of their students' interests? and (7) Can a linear model capture most of the variation in childrens' preferences and the teacher's predictions, or is a configural model necessary? In addition to these questions about the judgment process itself, the study should provide further information on the nature of the children's reading preferences, and on specific content areas where teachers are more or less sensitive to student preferences.

The Lens-Model Analysis

The present study was intended to serve a general methodological purpose that is unrelated to the specific topic of student reading preferences. We assume that teacher judgment is a part of the mental life of teachers that profoundly affects the cognitive and emotional development of students. It is hoped that the present study will demonstrate how a lens-model analysis can be used to gain knowledge about the factors which are contributing to teacher judgmental accuracy in specific educational situations. To this end, the following discussion of the lens model is presented. It should be noted that a lens-model analysis requires (1) a criterion measure of the event being judged;

(2) a list of cues which are predictive of both the criterion measure and the judgment; and, of course, (3) the judgments themselves.

The lens-model treatment of judgment data produces a measure of overall judgmental accuracy for each judge and identifies four factors which contribute to overall accuracy:

1. ecological validity of the cues (i.e.,the extent to which the coded cues predict the criterion);

2. the consistency with which the judge uses the cues (i.e., the extent to which the cues are predictive of the judge's performance). To the extent that cues are not good predictors of the criterion, or not used consistently by the judge, judgmental accuracy will be lower;

3. The knowledge of the relationship between the cues and the criterion is reflected in the degree of correspondence between the judge's pattern of weighting each cue and the pattern of weights between each cue and the criterion.

4. The non-linear component of judgment indicates the extent to which systematic (non-random) variation in judgment occurs which is not predicted by the linear model. This component may indicate the contribution of unidentified cues. Since the model only accounts for variation which can be attributed to a linear combination of the weighted cues, the non-linear component of judgment is also a good indication of the adequacy of a linear model for the particular judgment being modeled (i.e. a large value could indicate the necessity for configural terms in the model).

In this study, student reading preferences (the criterion) were identified by having students select which books they would like to read from a list of book descriptions. Teachers were asked to predict the preferences of each student. Each book description was coded for the presence or absence of the 29 book cues discussed in the study described above (Evans and Byers, Note 3) and a lens-model analysis of the factors contributing to the teachers' judgmental accuracy was conducted. Teachers and students from grades K-6 were included in the study, and the influence of grade level and sex of student on teacher judgmental patterns was examined.

Method

Subjects

A total of 29 teachers and 227 students served as subjects. The distribution of the teachers and students in terms of grades, sex, and location is indicated in Table 1. Four or five boys and girls were selected randomly from each teacher's class list.

Materials

The Scholastic Press publishes a monthly brochure which contains brief descriptions of books that are available for different grade levels. A separate, monthly brochure is available for grades K-1, 2-3, and 4-6. The different brochures vary in the number of books advertised, with the lower-level (K-1) brochures having the fewest, and the upper-level brochures having the most. Table 1 indicates the total number of books in brochures presented to students at each grade level. This total number represents two separate testing occasions for all grades except the sixth, which was tested only once.

Procedure

Students were taken in small groups (6-10 students per group) to an isolated room. The experimenter passed out the brochures to students and told them that we were interested in what books they liked to read. Younger students (those in grades K-3) were given packets of red stickers, and were asked to indicate which books they might like to buy by attaching a sticker to those books on the brochure description. Only ten stickers were given to each student, so they had to reject at least half of the books. Older students were given sheets with book title names and asked to check the books they would want if they could buy them, up to a maximum of ten books.

Teachers were presented with the brochures and a data sheet for each student. They were asked to indicate which books they thought each

of their students would like.

Thus the data consisted of actual student selections and teacher predictions of those selections for each student. The total number of book selections for each grade level can be found in Table 1.

Data Analysis

Each of the book descriptions were coded for the presence and absence of the 29 cues discussed above. The summed ratings of each book on each cue became the predictor variables or cues for the lens-model analysis. Since a shorter cue list tends to make the analysis more reliable, the cue lists were shortened as follows. If, for a particular grade level and book list, a cue was coded fewer than five times, the cue was not used for that set of books and grade level. The resulting number of cues used for each book list and grade level appears in Table 1.

Results

Questions of interest regarding the lens-model analysis included:

1. Is a judgment such as selecting books for children to read describable in terms of a lens model? Specifically, is the non-linear/missing cue parameter very large?

2. What task-environment variables impact on these judgments? Specifically, do a child's sex and grade level have an effect either independently or in combination on the values of the lens-model parameters?

3. Is there evidence for significant teacher differences on this task? Specifically, are there differences between teachers in terms of the values of the lens-model parameters? Further, how do these differences compare with task environment variables (i.e., sex and grade level)?

4. What cues are important in influencing book selections over grade levels and sex? Do these reflect the cues used by publishers at various grade levels with the average cue weights for students at those grade levels?

The data and analyses described below address these questions.

Table 2 indicates the average values of the five lens-model parameters across grades K-6, and their standard deviations. Figures 1-5 illustrate the patterns of change for boys and girls across grades K-6 for each of the lens-model parameters. Table 3 presents this data with standard deviations and sample sizes for each sex/grade group. Finally, Table 4 presents the results from a multivariate F-test for the five lens-model parameters with sex and grade level as factors, as well as step-down F-tests for each parameter.

Since the design is unbalanced, the first term in the MANOVA[2] that should be considered is the sex-by-grade interaction. The F for the sex-by-grade interaction was significant ($F=2.272$, $df=25,785$, $P < .01$). This indicates that the parameters of the lens model for this task are affected by both grade level and sex of the student. (Main effects as such are uninterpretable with the present design when the interaction is significant.)

The step-down F-tests for the sex-by-grade interaction show no significance for accuracy or knowledge. The sex-by-grade interaction has its effect on the remaining three lens-model parameters: cue use, cue validity, and non-linear/missing cues. From Figure 4, it would appear that cue use is less consistent for boys than for girls in grades 1 and 6, and about the same for boys and girls in the other grades. Of course, teacher effects are nested within grades, a fact we will discuss below. Figure 5 illustrates a dramatic difference in the value of the non-linear/missing-cues parameter for boys and girls in grades 5 and 6, with it going up for boys and down for girls. This may indicate, especially for grade 6, that teachers are using cues for boys that are not included in the model.

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[2] Multivariate analysis of variance.

One finding of interest is the dramatic drop in accuracy for girls in the fifth grade (see Figure 1). The values for cue use, cue validity, and non-linear/missing cues for boys and girls in grade 5 are nearly identical (see Figures 2-4), but the missing-cues parameter is much higher for boys than for girls (see Figure 5). Purely by chance, the only male teachers in the study were in grade 5. These results could be interpreted to mean that male teachers rely on cues not included in the model, and those cues are effective in predicting reading interests for male, but not female fifth graders. This is, at best, a trend, since there were only two fifth-grade classes and hence only two male teachers. Although the sample size precludes valid statistical inference concerning this trend, the observed effects were substantial enough in size to warrant speculation as to their cause.

The value of missing cues/nonlinearity, while significantly greater than chance, is nonetheless quite small in the present study, indicating that the lens model does a reasonably good job of capturing the policies of teachers on this task. Since 27 of the 29 teachers in the study were female, this generalization can only be applied to female elementary-school teachers; we don't know if the model would capture the policies of male teachers as well.

The third question (Are teachers similar or different in their judgment policies?) may be answered by making a comparison. Since teacher effects and grade-level effects are partially confounded, we can compare the proportion of variance accounted for by teacher differences to the proportion accounted for by grade and sex differences. This comparison shows the extent to which differences in judgment-policy parameters are caused by students' grade level and sex, and the extent to which these changes are a function of the differences between teachers. The sex and

grade level of the student could be thought of as essential components of the task environment in which teachers make their judgments. Hence, variation in judgments related to sex and grade level may be thought of as reactions to changes in the nature of the task. Variation related to teacher differences alone may be thought of as differences in ability and background.

A MANOVA for between-teacher differences on the five lens-model parameters was conducted, and the results indicated that teachers were significantly different from each other ($F = 2.22$, $df = 140,962$, $P < .001$, see Table 5). Sums of squares for the task environment variables (sex and grade level of students) were compared with sums of squares for teacher effects to determine whether the task environment or teacher differences account for more variation in the judgmental performance as indicated by the lens-model parameters. This comparison showed that teacher differences account for approximately 22% more variation in overall accuracy, 15% more variation in knowledge, and 40% more variation in the missing cues/nonlinearity component. Variation in cue validity and cognitive control was accounted for equally by teacher effects and task environment effects (Table 5).

The task environment (grade level and sex) effects, taken with the teacher effects, may be interpreted to mean that the grade and sex of the child are important determinants of teacher judgmental performance as are individual teacher differences. Teacher differences account for the greatest variation in knowledge and missing cues. This finding makes sense; it would be reasonable to expect that knowledge and use of subtle cues depend on differences between judges, while cue validity and consistent cue use are responsive to changes in the nature of the task.

It is also noteworthy that the range of overall accuracy is from -.23 to .69, with a mean of .23. The factors which are under the control of the teacher as judge are cognitive control and knowledge. The mean and standard deviation for these factors was .68 (standard deviation = .09) and .31 (standard deviation = .24), respectively. The mean for non-linearity/missing cues was low (.16), but showed substantial variation (standard deviation = .22) (see Table 6).

The average values of the lens-model parameters for this judgment task revealed that (1) children used the coded cues in making their selections, as did teachers; (2) teacher knowledge of children's reading interests was quite low, probably the most important limiting factor in this judgment task; (3) the tendency to use other cues and/or a non-linear judgment rule varied greatly between teachers, although it was not generally large; (4) since the range of accuracy was so great, it is clear that this task can be performed with considerable accuracy, although it typically is not.

Educational Significance

If we consider what we have learned from this study, there are a few glaring facts and a few subtle ones. Our initial assumption that teachers are not typically aware of their student's reading interests was clearly substantiated. In fact, the observed level of accuracy was much lower than we anticipated. It is also clear from the lens-model analysis that lack of teacher knowledge about student interests is the biggest handicap to accurate predictions, and that students and teachers do respond consistently to the cue configurations. Considerable improvement in accuracy can thus be expected if teachers are provided with facts about each student's reading preferences. The most effective form of information would probably be process feedback (Hammond, 1971).

Some subtle findings involve the grade-by-sex interaction for cue use and missing cues. It appears that the cues in the present model are better for predicting girls' interests than boys', especially in grades 5 and 6, and, to a lesser extent, grade 1. This suggests that further research needs to be done to determine what cues are being used for boys in the later elementary school years since the lens model cannot be used to improve judgmental accuracy until the relevant cues are identified.

Student Reading Interests

The lens-model analysis provides estimates of the importance of each book cue for students of different sex and grade level. Table 7 lists the average correlation for each book cue with pupil selections as a function of pupil sex. Table 8 does the same as a function of pupil grade level. Table 9 lists the percentage of books containing each book cue at the three grade levels offered by the publishers (i.e., K-1, 2-3, and 4-6). For purposes of comparison, we will point out those differences in correlations which exceed .10. It is noteworthy that there were no cues which were positively or negatively valued across either sex or grade. If a cue had either positive or negative values exceeding .10, those values changed with both grade and sex. This is supportive of earlier findings (e.g., Oliver, 1977; Asher, Note 1; Blom, Waite, Zimet, & Wiberg, Note 4) which indicate that reading preferences are not stable, and are influenced by the sex and grade of the student.

The first cue with sex differences was *Info:Science*. Girls valued science books ($r = .059$), boys did not ($r = -.103$). And teacher predictions paralleled these differences. *Realistic Fiction* showed the reverse pattern, with boys preferring books of this type ($r = .055$) while girls did not ($r = -.080$). Again, teacher predictions reflected these differences. Other cues with this pattern (preferred by or neutral for boys, disliked by girls) were

Devotion (.056 for boys, -.057 for girls), *Home and Family* (.0 for boys, -.144 for girls), and *Female Character* (r = .084,-.111). And in every case, the general teacher predictions reflected these differences. It is noteworthy that these are not in the direction of cultural stereotypes of male and female preferences. The reverse pattern (preferred by girls, disliked by boys) was only found for *Sports*. The only other difference found was for *Humor* which was neutral for girls, preferred by boys (.035, .129), and *Home and Family* which was neutral for boys, disliked by girls (.006, -.144).

In discussing the changes in Table 8, a negative function will be defined as those instances in which the value of a cue consistently decreases from grades K-6, and the total of the differences exceeds .10. A positive function will be defined as a consistent increase. *Fantasy* produced a negative function as did *Folktales, Fables and Myths*. The following cues produced positive functions: *Realistic Fiction, Heroism* (this showed an increase only after grade 4, which was not quite equal to .10), *Humor, Horrible and Hideous, Male Character,* and *Peers,* which showed a drop in grade 6. Of these developmental changes, teacher predictions reflected only the changes in *Heroism* and *Male Character* (2 of 8), indicating that teachers are, in general, less sensitive to differences in reading preferences between grades than between sexes.

A final comparison of interest is the percentage of books available with specific characteristics as a function of grade level. Are publishers sensitive to changes in preference across grades? The changes in books offered in grades K-1, 2-3, and 4-6 reflected changes in student preferences for the cues *Fantasy; Folktales, Fables, and Myths: Realistic Fiction; Animal (Not Horses);* and *Peers* (see Table 9); there was an increase in books offered with cues that were preferred by students of

that grade level. For *Humor* and *Horrible and Hideous*, the changes in books offered were in the opposite direction to student preferences (negative rather than positive functions). They did not show consistent changes for *Heroism* and *Male Character*, the exact cues which teachers were sensitive to. In addition, the books available increased for *Info:Other*, *Sports*, and *Death*. In general, publishers did better than teachers, with changes in book contents reflecting student preference changes in five of nine cases. This is not surprising since publishing companies construct their book lists based on how well the books sell, which in turn, reflects a combination of student preferences and parent/teacher influences.

In summary, many of the observed developmental changes are not surprising, and in fact support earlier findings. An increase in preference for stories of realistic fiction, heroism, humor, and peers as students grow older is supportive of findings by such researchers as Oliver (1977) and Ford and Koplyay (1968). The findings indicate that these particular preference patterns have not changed over the past decade, and that the average correlation of cues with preferences is sensitive to such changes. The sex difference findings were less consistent with earlier studies, and may indicate that young female students are being affected by the changing role of women in society. Thus, females preferred *Info-Science*, and *Sports* and did not like books on *Devotion*, *Home and Family*, and *Female Character*. It may be conjectured that the rejection of female characters by female students is due to the traditional portrayal of female characters in roles which are rejected by young female students. The fact that young male students are not rejecting these patterns (they prefer books with these topics) may indicate that these role changes are not affecting the preferences of young male students.

It should be emphasized that the size of the cue correlations is

small, and hence the preference patterns described by individual cue correlations do not account for a substantial amount of variation. The difference found was nonetheless provocative.

Conclusions

The present study illustrates that a lens-model analysis may be used to identify those factors which contribute to teacher judgmental accuracy for specific problems. The specific findings suggest that, although student reading preferences are predictable, they are also unstable, and teachers do not have sufficient knowledge of individual student interests to accurately predict the books a student will prefer. The analyses also suggest that teachers are highly individualized in their judgment patterns for this task, which may indicate the lack of a specific professional format for approaching this task. This is not surprising, since teachers are not typically provided with either tools or training to assist them in making judgments of this type. Finally, there was some evidence that teachers of fifth- and sixth-grade boys may use cues which are not included in the present model, even though the model predicts teacher judgments for fifth- and sixth-grade girls quite well.

Key to Tables

R(A) = Overall judgmental accuracy

R(E) = Cue validity

R(S) = Judgmental consistency

G = Judgmental knowledge

C = Missing cues/non-linearity

Note: See page 3 for an elaboration of the meaning of each item.

TABLE 1

CUE FREQUENCY EXPRESSED AS A PERCENTAGE OF
BOOKS FOR THREE LISTS COVERING
GRADES 'K' TO SIXTH

	TYPES OF CUES	KINDERGARTEN FIRST GRADE (N=38)	SECOND THIRD (N=50)	FOURTH-SIXTH (N=91)
1	TYPE: BIOGRAPHY	0.00	12.00	10.48
2	INFO: SCIENCE	23.07	22.00	8.87
3	INFO: HISTORY	0.00	4.00	4.03
4	INFO: OTHER	0.00	10.00	24.19
5	FANTASY	69.23	42.00	20.96
6	SCIENCE FICTION	0.00	2.00	7.25
7	FOLKTALES, FABLES MYTHS	25.64	12.00	4.03
8	HISTORICAL FICTION	0.00	10.00	9.67
9	REALISTIC FICTION	41.02	38.00	50.00
10	POETRY	0.00	2.00	0.80
11	PICTURE BOOK	56.41	34.00	11.29
12	THEMES: COPING	43.58	20.00	47.58
13	DANGER	46.15	32.00	45.96
14	DEVOTION	23.07	16.00	25.00
15	HEROISM	25.64	20.00	27.41
16	HOME AND FAMILY	35.89	42.00	24.19
17	HUMOR	64.10	50.00	23.03
18	SPORTS	0.00	6.00	12.90
19	HORRIBLE AND HIDEOUS	35.89	10.00	10.48
20	DEATH	0.00	4.00	9.67
21	DRUGS AND ALCOHOL	0.00	0.00	0.80
22	MYSTERY AND SURPRISE	51.28	46.00	41.93
23	SURVIVAL	33.33	30.00	35.48
24	MALE CHARACTER	64.10	30.00	50.80
25	FEMALE CHARACTER	35.89	38.00	37.09
26	ANIMAL (NOT HORSES)	74.35	52.00	27.41
27	HORSES (S)	0.00	8.00	12.90
28	SIGNIFICANT OTHERS	33.33	36.00	28.22
29	PEERS	0.00	18.00	20.96

TABLE 2

NUMBERS, GRADE LEVEL, LOCATION AND SEX OF CHILDREN AND TEACHERS USED IN THE STUDY OF TEACHER JUDGEMENTS OF CHILDREN'S READING PREFERENCES

GRADE LEVEL	TEACHERS NO.	LOCATION	NUMBER OF CHILDREN BOYS	GIRLS	TOTAL	NUMBER OF CUES USED	BOOK LIST LENGTH	BOOK SELECTION DECISIONS
KINDERGARTEN	2	LANSING	4	4	8	18	39	312
FIRST	7	LANSING	20	19	39	18	39	1521
SECOND	10	LANSING	43	40	83	19	50	4150
FOURTH	4	LANSING	19	20	39	25	91	3549
	1	OLIVET	5	5	10	25	75	750
FIFTH	2	OLIVET	10	10	20	25	75	1500
SIXTH	3	JACKSON	14	14	28	17	42	1176
TOTALS	29		115	112	227			12958

TABLE 3

AVERAGE VALUES FOR THE LENS MODEL

PARAMETERS ACROSS GRADES K - 6

		MEAN	S.D.	N
KINDERGARTEN	R(A)	0.258	0.246	8
	R(E)	0.694	0.125	8
	R(S)	0.752	0.116	8
	G	0.234	0.336	8
	C	0.239	0.160	8
FIRST	R(A)	0.235	0.208	39
	R(E)	0.715	0.088	39
	R(S)	0.719	0.093	39
	G	0.287	0.272	39
	C	0.164	0.264	39
SECOND	R(A)	0.257	0.185	83
	R(E)	0.677	0.069	83
	R(S)	0.677	0.063	83
	G	0.327	0.235	83
	C	0.192	0.225	83
FOURTH	R(A)	0.249	0.157	49
	R(E)	0.634	0.124	49
	R(S)	0.642	0.112	49
	G	0.408	0.206	49
	C	0.129	0.158	49
FIFTH	R(A)	0.134	0.162	20
	R(E)	0.651	0.058	20
	R(S)	0.665	0.097	20
	G	0.220	0.212	20
	C	0.058	0.206	20
SIXTH	R(A)	0.206	0.194	28
	R(E)	0.684	0.096	28
	R(S)	0.680	0.095	28
	G	0.219	0.229	28
	C	0.171	0.279	28

TABLE 4

AVERAGE VALUES FOR THE LENS MODEL

FOR BOYS AND GIRLS IN GRADES K-6

		BOYS			GIRLS		
		MEAN	S.D.	N	MEAN	S.D.	N
KINDERGARTEN	R(A)	0.292	0.055	4	0.223	0.367	4
	R(E)	0.619	0.123	4	0.769	0.083	4
	R(S)	0.749	0.129	4	0.755	0.120	4
	G	0.287	0.192	4	0.181	0.469	4
	C	0.248	0.121	4	0.231	0.212	4
FIRST	R(A)	0.193	0.218	20	0.279	0.192	19
	R(E)	0.700	0.088	20	0.730	0.087	19
	R(S)	0.663	0.074	20	0.779	0.071	19
	G	0.257	0.260	20	0.320	0.289	19
	C	0.137	0.274	20	0.193	0.259	19
SECOND	R(A)	0.254	0.178	43	0.260	0.194	40
	R(E)	0.680	0.068	43	0.673	0.070	40
	R(S)	0.681	0.065	43	0.672	0.063	40
	G	0.327	0.221	43	0.327	0.252	40
	C	0.186	0.211	43	0.198	0.242	40
FOURTH	R(A)	0.234	0.151	24	0.263	0.163	25
	R(E)	0.620	0.080	24	0.647	0.156	25
	R(S)	0.647	0.065	24	0.638	0.144	25
	G	0.386	0.221	24	0.429	0.193	25
	C	0.126	0.145	24	0.131	0.172	25
FIFTH	R(A)	0.190	0.182	10	0.077	0.123	10
	R(E)	0.650	0.055	10	0.652	0.064	10
	R(S)	0.675	0.094	10	0.654	0.104	10
	G	0.229	0.231	10	0.212	0.202	10
	C	0.141	0.216	10	0.024	0.168	10
SIXTH	R(A)	0.186	0.211	14	0.227	0.182	14
	R(E)	0.626	0.072	14	0.742	0.082	14
	R(S)	0.615	0.062	14	0.745	0.076	14
	G	0.115	0.250	14	0.323	0.155	14
	C	0.225	0.257	14	0.118	0.299	14

TABLE 5

"UNIVARIATE, MULTIVARIATE, AND STEP-DOWN F-TESTS FOR THE LENS PARAMETERS"

(INDEPENDENT VARIABLES: SEX AND GRADE OF STUDENT/TEACHER GROUPS)

	UNIVARIATE TESTS					MULTIVARIATE F			STEP DOWN F-TESTS				
SOURCE	R(A)	R(E)	R(S)	G	C	F	DF N	DF D	R(A)	R(E)	R(S)	G	C
CONSTANT	363.1	13132.5	14815.7	393.0	116.2	4652.6	5.0	211.0	363.1	4736.3	132.6	5.4	16.0
SEX	0.3	5.4	6.5	1.7	0.2	1.9	5.0	211.0	0.8	5.1	3.5	0.4	0.0
GRADE LEVEL	1.6	4.1	5.0	3.3	1.5	3.4	25.0	785.3	1.6	4.1	3.0	7.1	1.2
SEX BY GRADE	0.8	2.8	5.8	1.0	0.0	2.2	25.0	785.3	0.8	2.8	4.7	1.6	1.1

TABLE 6

Univariate, Multivariate and Step-Down F-Tests for Lens Model Parameters
Using Teacher (classroom) as the Independent Variable

Source	Univariate F-Tests					Multivariate F-Tests			Step-Down F-Tests				
	R(A)	R(E)	R(S)	G	C	F	DF(Nim)	DF(DEN)	R)A)	R(E)	R(S)	G	C
Constant						4126.	5	194					
Teacher	5.10	1.76	1.57	3.98	2.76	2.22	140	962	5.10	1.89	1.56	2.16	0.96

TABLE 7

OVERALL AVERAGE VALUES FOR THE LENS MODEL

PARAMETERS

IN THE SEX BY GRADE LEVEL ANALYSIS

	Correlations							
	R (A)	R (E)	R(S)	G	G	MEAN	SD	N
R (A)	1.000	0.124	0.134	0.777	0.784	0.234	0.186	227
R (E)	0.124	1.000	0.393	0.172	-0.034	0.673	0.094	227
R (S)	0.134	0.393	1.000	0.158	-0.025	0.679	0.093	227
G	0.777	-0.172	-0.158	1.000	0.253	0.312	0.243	227
C	0.784	-0.034	-0.025	0.253	1.000	0.161	0.226	227

TABLE 8

AVERAGE SIMPLE CORRELATIONS FOR BOOK CUES WITH PUPIL SELECTIONS AND WITH TEACHER JUDGEMENTS OF THOSE SELECTIONS AS A FUNCTION OF PUPIL'S SEX

		PUPILS		TEACHERS	
		GIRLS	BOYS	GIRLS	BOYS
	LIST OF CUES	(N=112)	(N=115)	(N=112)	(N=11)
1	TYPE: BIOGRAPHY	0.014	0.033	0.002	0.042
2	INFO: SCIENCE	0.059	0.103	0.107	0.137
3	INFO: HISTORY	0.000	0.000	0.000	0.000
4	INFO: OTHER	0.036	0.052	0.041	0.074
5	FANTASY	0.044	0.128	0.029	0.144
6	SCIENCE FICTION	0.006	0.009	0.006	0.007
7	FOLKTALES, FABLES MYTHS	0.042	0.015	0.021	0.003
8	HISTORICAL FICTION	0.005	0.011	0.024	0.017
9	REALISTIC FICTION	0.080	0.055	0.052	0.116
10	POETRY	0.000	0.000	0.000	0.000
11	PICTURE BOOK	0.006	0.010	0.003	0.037
12	THEMES: COPING	0.024	0.056	0.026	0.058
13	DANGER	0.004	0.008	0.004	0.009
14	DEVOTION	0.056	0.057	0.056	0.090
15	HEROISM	0.048	0.059	0.025	0.022
16	HOME AND FAMILY	0.144	0.006	0.126	0.080
17	HUMOR	0.035	0.129	0.006	0.139
18	SPORTS	0.041	0.045	0.039	0.047
19	HORRIBLE AND HIDEOUS	0.005	0.016	0.055	0.019
20	DEATH	0.007	0.020	0.021	0.011
21	DRUGS AND ALCOHOL	0.000	0.000	0.000	0.000
22	MYSTERY AND SURPRISE	0.035	0.015	0.030	0.033
23	SURVIVAL	0.002	0.006	0.010	0.010
24	MALE CHARACTER	0.002	0.010	0.036	0.041
25	FEMALE CHARACTER	0.111	0.084	0.124	0.180
26	ANIMAL (NOT HORSES)	0.124	0.071	0.119	0.048
27	HORSES(S)	0.029	0.040	0.034	0.031
28	SIGNIFICANT OTHERS	0.034	0.050	0.032	0.030
29	PEERS	0.035	0.048	0.053	0.008

TABLE 9

AVERAGE SIMPLE CORRELATION FOR BOOK CUES WITH PUPIL SELECTIONS AND WITH TEACHER JUDGEMENTS OF THOSE SELECTIONS AS A FUNCTION OF GRADE LEVEL.

	PUPILS						TEACHERS					
CUES	K (N=8)	1 (W=35)	2 (N=87)	4 (N=49)	5 (N=20)	6 (N=28)	K (N=8)	1 (N=35)	2 (N=87)	4 (N=49)	5 (N=20)	6 (N=28)
YPE: BIOGRAPHY	0.000	0.000	0.066	0.009	0.041	0.000	0.000	0.000	0.052	0.026	0.063	0.000
NFO: SCIENCE	0.086	0.038	0.002	0.060	0.021	0.000	0.054	0.088	0.013	0.000	0.042	0.000
NFO: HISTORY	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
NFO: OTHER	0.000	0.000	0.000	0.007	0.055	0.095	0.000	0.000	0.000	0.014	0.083	0.103
ANTASY	0.147	0.123	0.074	0.101	0.072	0.047	0.008	0.136	0.032	0.072	0.032	0.060
CIENCE FICTION	0.000	0.000	0.000	0.024	0.024	0.000	0.000	0.000	0.000	0.015	0.034	0.000
OLKTALES, FABLES MYTHS	0.121	0.023	0.076	0.000	0.000	0.000	0.045	0.027	0.047	0.000	0.000	0.000
ISTORICAL FICTION	0.000	0.000	0.000	0.011	0.009	0.000	0.000	0.000	0.000	0.012	0.007	0.000
EALISTIC FICTION	0.075	0.024	0.053	0.005	0.005	0.117	0.161	0.006	0.007	0.033	0.041	0.151
OETRY	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
ICTURE BOOK	0.089	0.089	0.118	0.004	0.079	0.103	0.009	0.112	0.086	0.022	0.104	0.153
HEMES: COPING	0.100	0.010	0.020	0.006	0.049	0.079	0.054	0.005	0.073	0.020	0.067	0.014
ANGER	0.008	0.025	0.017	0.020	0.062	0.058	0.114	0.001	0.053	0.019	0.158	0.138
EVOTION	0.004	0.096	0.003	0.016	0.023	0.059	0.136	0.071	0.011	0.037	0.093	0.109
EROISM	0.054	0.036	0.023	0.074	0.065	0.129	0.101	0.000	0.002	0.029	0.071	0.124
OME AND FAMILY	0.077	0.177	0.119	0.006	0.031	0.076	0.072	0.039	0.087	0.031	0.012	0.060
UMOR	0.038	0.060	0.076	0.102	0.045	0.137	0.143	0.067	0.096	0.119	0.095	0.033
PORTS	0.000	0.000	0.000	0.008	0.051	0.000	0.000	0.000	0.000	0.009	0.029	0.000
ORRIBLE AND HIDEOUS	0.120	0.029	0.002	0.003	0.054	0.000	0.113	0.019	0.004	0.066	0.068	0.000
EATH	0.000	0.000	0.000	0.021	0.027	0.000	0.000	0.000	0.000	0.024	0.003	0.000
RUGS AND ALCOHOL	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000	0.000
YSTERY AND SURPRISE	0.037	0.063	0.057	0.004	0.032	0.023	0.068	0.082	0.081	0.004	0.115	0.056
URVIVAL	0.038	0.002	0.029	0.001	0.055	0.055	0.154	0.019	0.037	0.035	0.078	0.106
ALE CHARACTER	0.037	0.082	0.050	0.065	0.057	0.150	0.087	0.002	0.021	0.060	0.039	0.145
EMALE CHARACTER	0.020	0.044	0.095	0.028	0.023	0.070	0.020	0.096	0.005	0.037	0.023	0.082
NIMAL (NOT HORSES)	0.012	0.078	0.173	0.076	0.046	0.018	0.042	0.064	0.124	0.049	0.138	0.007
ORSES (S)	0.000	0.000	0.000	0.006	0.026	0.019	0.000	0.000	0.000	0.025	0.001	0.036
IGNIFICANT OTHERS	0.101	0.020	0.008	0.124	0.081	0.038	0.152	0.007	0.020	0.086	0.000	0.025
EERS	0.000	0.000	0.058	0.048	0.107	0.000	0.000	0.000	0.094	0.012	0.091	0.000

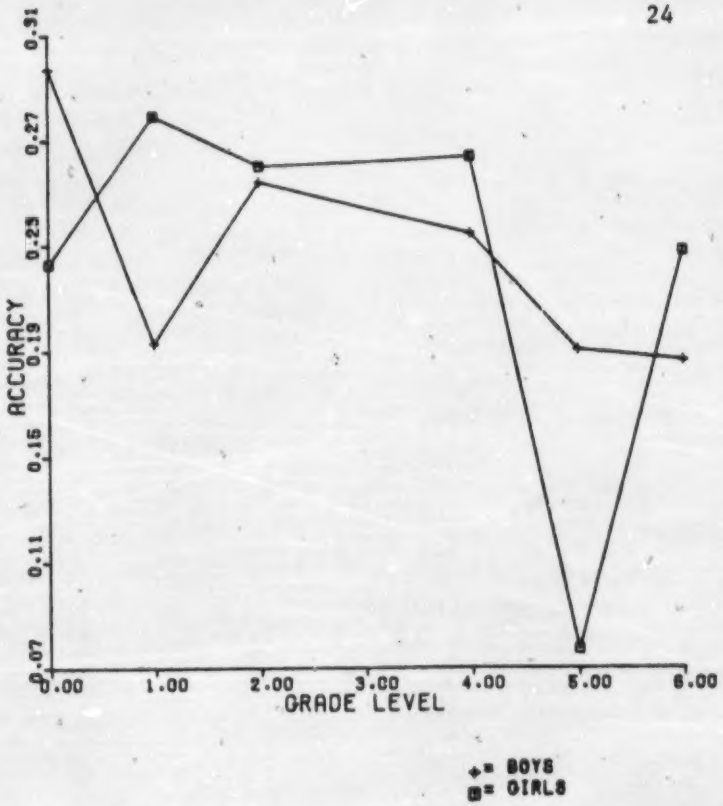


Figure 1. Average values of judgmental accuracy for boys and girls across grades K-6.

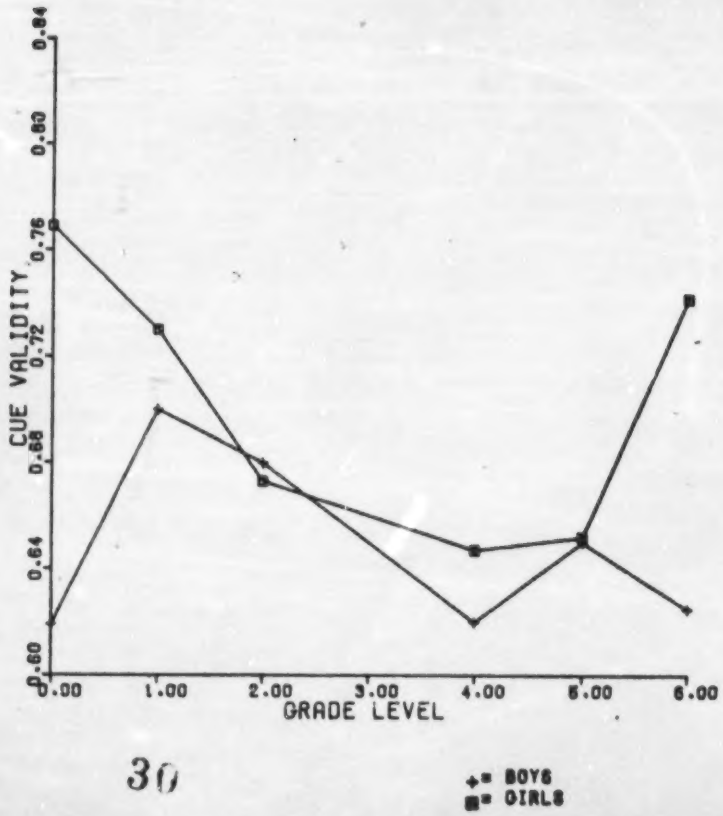


Figure 2. Average values of cue validity for boys and girls across grades K-6.

Figure 3. Average values of cue utilization for boys and girls across grades K-6.

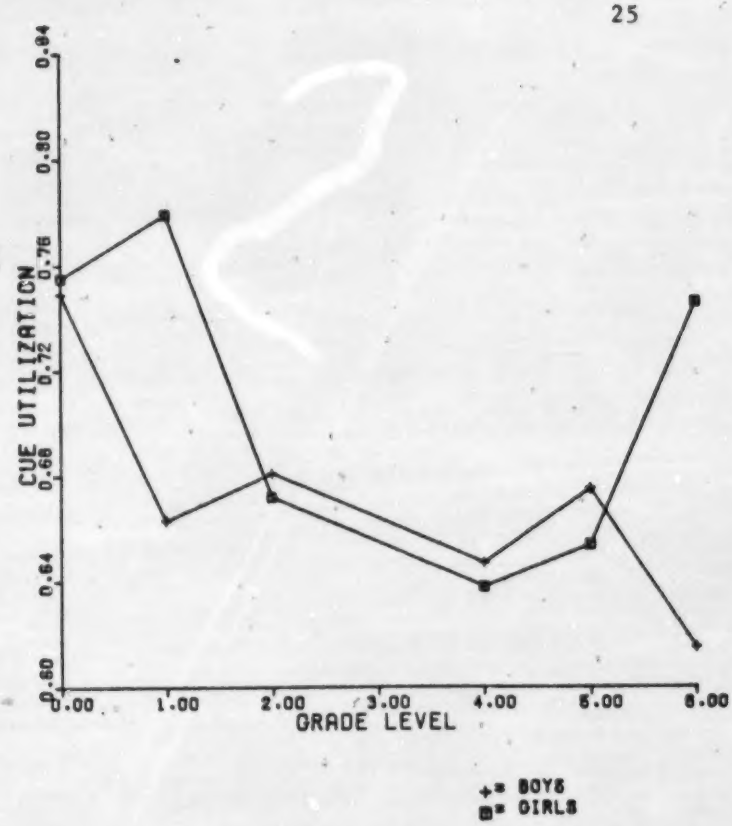
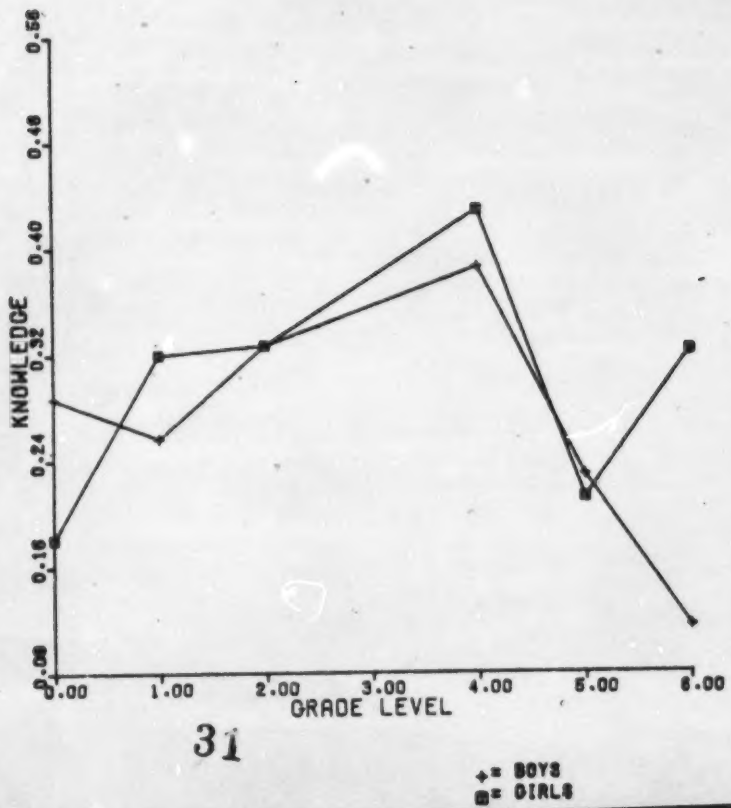


Figure 4. Average values of judgmental knowledge for boys and girls across grades K-6.



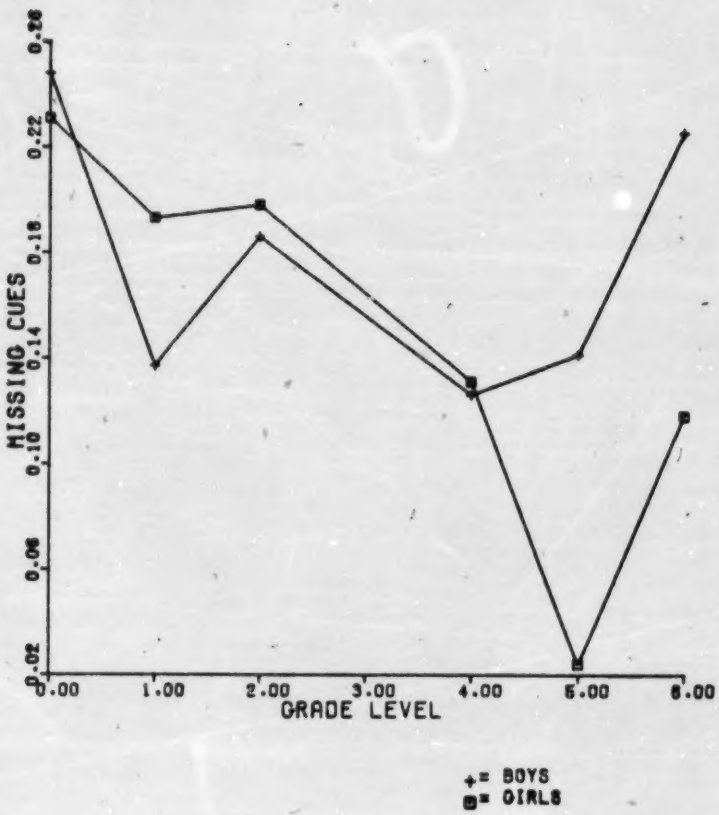


Figure 5. Average values of missing cues for boys and girls across grades K-6.

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